

ESA's NEO Coordination Centre

Current NEO statistics

The numbers are referred to one day before the end of the month, in order to allow for the publication of the newsletter on the International Asteroid Day.

- Known NEOs: 23005 asteroids and 110 comets
- NEOs in risk list*: 1059
- Number of NEOs designated during last month: 112
- NEOs discovered since 1 January 2020: 1330

Focus on

A number that is often quoted says that, on average, 6-7 new NEOs are discovered each day. However, this average is only a crude approximation of the actual behaviour of NEO discovery rates, which is subject to significant daily and seasonal fluctuations. The most evident modulation in the discovery rate is caused by the moon. Dark skies around new moon periods are more suitable for discovery, while bright nights around full moon make the detection of new faint objects much harder, so much that some NEO surveys actually are stopped entirely for a few days around each full moon. The result of this cycle is a modulation in the effective number of nightly discoveries, which can go from zero around full moon to more than 20 on a dark moonless night. In addition, since NEOs are typically announced only after they are confirmed by independent observers, the actual discovery announcements show a lag of a few days with respect to the moon cycle.

A second significant periodicity in NEO discoveries is caused by seasons. Since most NEO surveys are in the Northern hemisphere and summer nights are shorter, the months between May and August typically see a drop in the discovery rate. This is enhanced by peculiar local weather patterns (e.g. monsoons in the US South-West) that further reduce discoveries in the summer. However, the peak discovery time is typically in the fall, not in the core winter months: this is mostly due to weather conditions being poorer on average during wintertime, with less clear nights.

Upcoming interesting close approaches

Low close approach activity foreseen for the month of July.

- 2020 MK3, measuring around 25 m, is expected to pass below 2 lunar distances on 1 July.

Recent interesting close approaches

A moderately large newly discovered asteroid flew closer than the Moon in June.

- 2020 LD is a 100-metre object which came to about 0.8 lunar distances on 5 June, but was only discovered by the ATLAS survey two days later.

News from the risk list

An object entered the top of the list, but was removed thanks to new observations.

- 2020 LV reached the top of our risk list for about a day, for a possible impact with a probability greater than 1% in 2118. Subsequent observations removed all threats.

* The risk list of all known objects with a non-zero (although usually very low) impact probability can be found at <http://neo.ssa.esa.int/risk-page>

In other news

- Asteroid Day will be celebrated worldwide this 30 June. Check activities here: <https://asteroidday.org/>
- We are releasing the second PDO riddle with this newsletter and with a deadline on 25 July. Find the release information here: <http://neo.ssa.esa.int/neocc-riddles>

Upcoming events

Relevant international meetings over the next months.

- Apophis T-9 Years, 9–10 November 2020, Nice, France
<https://www.hou.usra.edu/meetings/apophis2020/>
- Hera Community Workshop, 11–13 November 2020, Nice, France
<https://www.cosmos.esa.int/web/hera-community-workshop/>

Statistics on NEA discoveries during last year lunations

The table shows the total number of discovered NEAs during each lunation of the last year, and the percentage that this value represents compared to the total number of NEAs discovered in the year (taking 13 lunations).

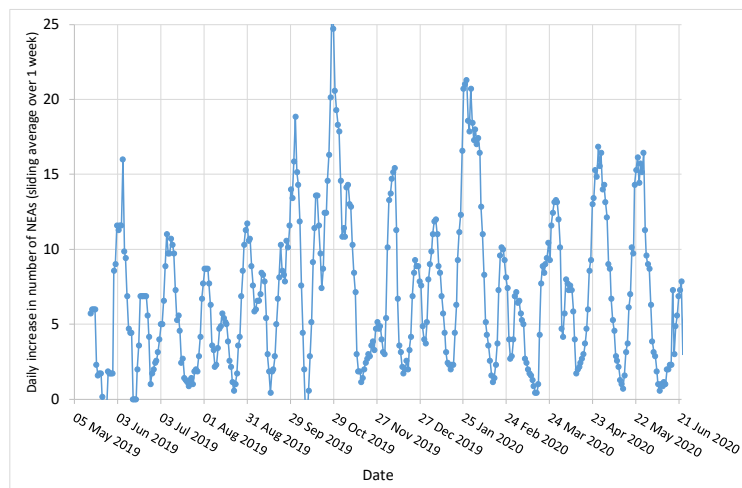
Full moon date	Total known NEAs at the full moon	Number of discovered NEAs during the previous lunation	Percentage on the total NEAs discovered in the year
2019-06-18	20280	150	5.4%
2019-07-17	20437	157	5.7%
2019-08-15	20563	126	4.5%
2019-09-14	20729	166	6.0%
2019-10-13	20967	238	8.6%
2019-11-11	21370	403	14.5%
2019-12-11	21539	169	6.1%
2020-01-10	21745	206	7.4%
2020-02-08	22084	339	12.2%
2020-03-09	22228	144	5.2%
2020-04-08	22447	219	7.9%
2020-05-08	22694	247	8.9%
2020-06-06	22904	210	7.6%

Links for more information

Website: <http://neo.ssa.esa.int>

Close approaches: <http://neo.ssa.esa.int/close-approaches>

Risk List: <http://neo.ssa.esa.int/risk-page>



Daily number of discovered NEOs (averaged over one week) in the last year. Vertical grid lines are provided at the new moons, to highlight the periods where more discoveries are typically performed every lunation.

Our “Focus on” for this month provides the relevant information for the understanding of this figure.

[Credit: ESA/NEOCC]

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